

Debate Pack

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Expansion of the Ultra Low Emission Zone

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1

Background

There will be a general debate on the expansion of London's Ultra Low Emission Zone (ULEZ) on 20 December 2022. The debate will take place in Westminster Hall and has been called by Gareth Johnson MP.

On 25 November 2022 the Mayor of London announced that the ULEZ scheme in London will be expanded to all Greater London from 29 August 2023.¹

1.1

Current ULEZ scheme

In April 2019 the Mayor of London launched the world's first ULEZ scheme in Central London to help tackle air pollution.² The scheme works by applying a £12.50 daily charge to any vehicle which enters the ULEZ that does not comply with the specified emission standards.

Any vehicle that enters a ULEZ zone must either be compliant with the relevant emissions standards, be exempt from ULEZ charges, or pay the daily charge no later than the third day following the journey. Cameras are used to check vehicle registration numbers against Transport for London's (TfL) database for compliance.^{3 4}

ULEZ replaced the toxicity charge, a £10 supplement to the congestion charge, and introduced tighter emission standards for vehicles, as well as operating 24 hours a day, 7 days a week (except Christmas Day). Initially the zone covered the same area as the congestion charge zone.⁵

In March 2021 heavy vehicle standards were incorporated into the scheme, and later that year, in October 2021, the Mayor expanded the scheme up to, but not including the North Circular (A406) and South Circular (A205) roads.⁶

The scheme is run by TfL and revenue collected is reinvested into maintaining and improving London's transport network.

¹ London Mayor and London Assembly, [Ultra Low Emission Zone will be expanded London-wide](#), [online], 25 November 2022, (accessed 16 December 2022)

² Transport for London, [GLA - World's first 24 hour Ultra Low Emission Zone](#), [online], 8 April 2019, (accessed on 16 December 2022)

³ Transport for London, [Paying the ULEZ charge](#), [online], (accessed 16 December 2022)

⁴ Transport for London, [ULEZ road signs](#), [online], (accessed 16 December 2022)

⁵ Transport for London, [GLA - World's first 24 hour Ultra Low Emission Zone](#), [online], 8 April 2019, (accessed on 16 December 2022)

⁶ Mayor of London and London Assembly, [New tighter Low Emission Zone standards for HGVs introduced in London](#), [online], 1 March 2021, (accessed 16 December 2022)

ULEZ emission standards and penalties

Euro standards are used for ULEZ, which are emission controls for nitrogen oxides (NO_x) and particulate matter (PM) applied to vehicles. Each subsequent standard has stricter emission controls, with the latest Euro 6 standards coming in between January 2014 and September 2016.

The standards for different vehicle categories under the ULEZ scheme are:

- Euro 3 for motorcycles, mopeds, motorised tricycles, and quadricycles (L category)
- Euro 4 (NO_x) for petrol cars, vans, minibuses, and other specialist vehicles
- Euro 6 (NO_x and PM) for diesel cars, vans and minibuses and other specialist vehicles.⁷

Lorries, vans, and specialist heavy vehicles over 3.5 tonnes, and buses, minibuses and coaches weighing over 5 tonnes do not need to pay the ULEZ charge. However, they are required to pay the Low Emission Zone (LEZ) charge. This is a separate scheme for heavy vehicles that operates in a similar way to ULEZ but covers most of Greater London.⁸

A person may be issued with a Penalty Charge Notice (PCN) if they drive into the ULEZ in a vehicle that does not meet the appropriate emissions standard and they fail to pay the daily charge. This applies to both UK and non-UK registered vehicles. The penalty charge is £160 for all vehicle types although this is halved if paid within 14 days of the PCN being received.⁹

Grace periods and temporary exemptions

There are several grace periods (temporary exemptions) in place for qualifying persons or vehicles. These include:

- Vehicles for disabled people, which are exempt until 24 October 2027 – this applies to those registered with the DVLA as having ‘disabled’ or ‘disabled passenger’ tax.
- Those over the state pension age and in receipt of Attendance Allowance and hold a blue badge, who can apply directly to TfL for a grace period.
- Community Transport Minibuses that carry passengers on a not-for-profit basis, which are exempt until 25 October 2025.

⁷ Transport for London, [ULEZ Standards](#), [online], (accessed 15 December 2022)

⁸ Transport for London, [Low Emission Zone](#), [online] (accessed 15 December 2022)

⁹ Transport for London, [Penalty charges for ULEZ](#), [online] (accessed 15 December 2022)

- Wheelchair accessible private hire vehicles (but only when carrying a private booking for TfL PHV operator), which are exempt until 24 October 2027.¹⁰

There are also some vehicles that are exempt from the scheme:

- London licensed taxis, although vehicle age limits apply
- Historic vehicles built more than 40 years ago (on a rolling basis)
- Other specialist vehicles e.g., military vehicles, non-road going vehicles, specialist agricultural vehicles, certain types of mobile crane¹¹

Those clinically assessed as being too ill to travel to an NHS appointment on public transport may also be eligible to claim back the ULEZ charge from their treating hospital.¹²

1.2 Planned expansion of ULEZ

In May 2022, TfL opened a consultation on expanding the ULEZ to all London boroughs. TfL state on their website:

Poor air quality is impacting the health of Londoners, and it's mainly caused by polluting vehicles. It's not just a central or inner London problem. In fact, the greatest number of health issues related to air pollution occur in outer London areas.¹³

The consultation contained four proposals, which also impact the LEZ and Congestion Charge schemes, to:

1. Expand the current ULEZ to the LEZ boundary on 29 August 2023 and extend existing grace periods.
2. Remove the £10 annual registration fee for each vehicle registered for AutoPay for the Congestion Charge, ULEZ and LEZ from 30 January 2023 to remove this barrier to sign up.
3. Increase the PCN level for ULEZ and the Congestion Charge from £160 to £180 from 30 January 2023 in recognition that its deterrent effect has diminished over time.

¹⁰ Transport for London, [Discounts and Exemptions](#), [online], (accessed 15 December 2022)

¹¹ As above

¹² As above

¹³ Transport for London, [ULEZ Expansion 2023](#), [online], (accessed 15 December 2022)

4. Make minor administrative changes to the ULEZ, LEZ and Congestion Charge schemes to increase flexibility or remove expired provisions.¹⁴

Consultation responses

The ten-week consultation period ended on 29 July 2022, with 57,937 respondents. This included 342 responses from stakeholders and 11,868 from organisations.

When asked about whether the ULEZ scheme should be expanded, the majority of respondents (59%) thought it should not be implemented. 12% believed it should be earlier, while 21% believed they thought it was the right date. Only 8% believed it should be implemented, but at a later date.

Concerns raised by a large number of respondents included that: the scheme penalises workers; comes at a time of increased cost of living; worries about affordability of daily charges; and it would be to the detriment of the economy. There were also comments that cars are necessary because public transport provisions are too poor. There was strong support for discounts and exemptions and respondents indicated that these should also be available for disabled people without a disabled class vehicle.¹⁵

YouGov Poll

Alongside the public consultation, the Greater London Authority (GLA) commissioned a poll to understand Londoners' views on the proposals. The survey was carried out by YouGov between 15th and 20th July 2022 with 1,245 responses which were weighted to be representative of all London adults.

Just over half of those surveyed (51%) supported the ULEZ expansion, with 21% keen to see it implemented by August 2023 and 22% at an earlier date. Just over a quarter (27%) thought it should not be enacted at all, and 8% supported implementation, but at a later date.¹⁶

Integrated Impact Assessment

Jacobs (a technical professional services provider) were commissioned to carry out an integrated impact assessment to identify key impacts associated with the scheme. This included how negative impacts could be avoided or mitigated where possible, and how positive impacts could be enhanced. The three themes assessed were environment, people, and economy.

¹⁴ Transport for London, [Report to Mayor on ULEZ expansion and future Road User Charging proposal](#), November 2022

¹⁵ As above

¹⁶ YouGov, [YouGov / Mayor of London Survey Results, Fieldwork Dates: 15th - 20th July 2022](#) (PDF), July 2022

ULEZ was deemed to likely have a moderate positive impact on NOx road traffic emissions and a minor positive impact on PM emissions. It was assessed that there would be a minor positive impact on health outcomes for Londoners.

Moderate negative impacts were expected for disabled people that do not qualify for Motability or disabled vehicle tax class exemptions, people on low incomes accessing employment in outer London (particularly the night-time economy), those with restricted mobility (including those who are pregnant and parents with young children), and people who receive domiciliary care, mobile healthcare services and informal care in outer London. There are also several groups who were identified as likely facing minor negative impacts.

For the economy, there were estimated minor negative impacts from contraction of the labour market, an increase in the cost of operating LGVs and a loss in retail spending.¹⁷

TfL Mitigations

In response to the consultation outcome TfL made two modifications to the planned scheme change. The first is two new time limited grace periods until 24 October 2027 in addition to the current provisions for disabled people. These are:

- Disabled benefits grace period for those on the standard rate mobility component of Personal Independence Payments (PIP)
- Wheelchair Accessible Vehicles grace period

The other mitigation is a scrappage scheme with £110 million funding which will initially be targeted at people with lower incomes, disabled Londoners, microbusinesses (those with less than 10 employees) and charities in Greater London. Those eligible can apply to the scheme to receive a payment to trade in a non-compliant vehicle for a compliant one. The money available will be £1,000 for motorcycles, £2,000 for cars, £5,000 for wheelchair accessible vehicles, and £5,000-£9,500 for vans and minibuses for microbusinesses and charities.¹⁸

Decision by Mayor of London

In November 2022, TfL submitted their report on expanding ULEZ to the Mayor of London. The Mayor of London has powers to introduce “road user charging” across all Greater London or some parts of it, under Section 295 of the Greater London Authority Act 1999.¹⁹ The report set out the proposals for

¹⁷ Jacobs, [London-wide ULEZ Integrated Impact Assessment \(ULEZ Scheme IIA\)](#) (PDF), 17 May 2022

¹⁸ Transport for London, [Report to Mayor on ULEZ expansion and future Road User Charging proposal](#), November 2022

¹⁹ [Greater London Authority Act 1999, s 295](#)

expansion, the results of the consultation and recommendations. TfL asked the Mayor to confirm the variation orders.

The variation orders in question are:

- the *Greater London Low Emission Zone Charging (Variation and Transitional Provisions) Order 2022*, which it is recommended is confirmed by the Mayor with the two modifications (Disabled Benefits and Wheelchair Accessible Vehicles grace period 100 per cent discounts) described above; and
- the Greater London (Central Zone) Congestion Charging (Variation) Order 2022, which it is recommended the Mayor confirms without any modifications.²⁰

On 25 November 2022, the Mayor announced that the expansion of ULEZ would go ahead, including the additional mitigation measures.²¹

1.3 Response to ULEZ expansion announcement

Following the announcement that the ULEZ expansion will proceed there has been a number of statements in response.

Some have welcomed the expansion, particularly regarding the extra mitigations. The leader of Merton Council, Ross Garrod, said:

Many of our residents are struggling to make ends meet and we were one of the first London boroughs to declare a cost of living emergency in July. This underlines the need for the biggest scrappage scheme yet, totalling £110million, announced by the Mayor of London. This is exactly what we called for in our response to the consultation if ULEZ was to be expanded, to support drivers, including key workers and people living in areas which are not well served by public transport²²

Disability campaigners also praised the provisions in the scheme to help disabled people impacted by the scheme. Inclusion London said:

²⁰ Transport for London, [Report to Mayor on ULEZ expansion and future Road User Charging proposal](#), November 2022

²¹ London Mayor and London Assembly, [Ultra Low Emission Zone will be expanded London-wide](#), [online], 25 November 2022, (accessed 16 December 2022)

²² Merton Council, [Merton Council welcomes help for drivers to scrap polluting vehicles as ULEZ is extended London-wide](#), [online], 25 November 2022, (accessed 16 December 2022)

We are delighted that the Mayor and TfL have taken on board our feedback about the negative financial impact the ULEZ expansion would have on disabled Londoners and took steps to mitigate it²³

However, there has also been opposition to the announcement, particularly among local councils. For example, a joint statement from Hillingdon, Harrow, Bexley, and Croydon councils was released announcing “their resolve to work with other outer London boroughs to resist its implementation by using all means at their disposal” with Hillingdon Council Leader, Cllr Ian Edwards, saying:

London cannot be treated with a one-size-fits-all approach when the make-up of inner boroughs is incredibly different to ours²⁴

The Federation of Small Businesses believes many of its members in Outer London will be badly hit and UK Logistics, while welcoming the opportunity for logistics operators within the capital to take active steps to plan vehicle replacement or upgrades, called for more flexibility in implementation to allow vehicle manufacturers to fulfil orders.^{25 26}

On 2 December 2022, 29 MPs wrote to the Mayor of London urging him to cancel the ULEZ expansion saying:

The Mayor of London’s decision to ignore Londoners’ objections and expand the Ultra Low Emission Zone is undemocratic and a hammer blow to households’ budgets.²⁷

²³ John Pring, '[Ultra low emission zone' Disabled campaigners welcome mayor's 'significant improvements' to clean air scheme](#), [online], Disability News Service, 1 December 2022, (accessed on 15 December 2022)

²⁴ Hillingdon Council, '[Joint statement from Hillingdon, Harrow, Bexley and Croydon councils on ULEZ expansion](#)', [online], 25 November 2022, (accessed 16 December 2022)

²⁵ BBC, '[ULEZ: Ultra Low Emissions Zone to cover all of London](#)', [online], 25 November 2022, (accessed 16 December 2022)

²⁶ Logistics UK, '[Statement from Logistics UK – Response to the expansion of London's ULEZ](#)', [online], 25 November 2022, (accessed 16 December 2022).

²⁷ '[ULEZ expansion is 'unfair' as Tory MPs call for it to be scrapped](#)', Watford Observer [online], 6 December 2022

2 Impacts of the expanded ULEZ and the LEZ

2.1 Air quality issues

Outer London air quality concerns

Transport for London (TfL) gives the primary reason for expanding the ULEZ as helping to improve air quality in outer London areas not currently covered by the existing ULEZ.²⁸ There is concern that air pollution has improved more slowly in outer London (outside the existing ULEZ), than in inner London.²⁹ The Mayor has stated that, “Expanding ULEZ London-wide will mean 5 million more people breathing cleaner air.”³⁰

TfL states that road vehicles are the single biggest cause of London's air pollution. Road vehicles are sources of some key air pollutants, specifically, particulate matter and nitrogen dioxide.³¹

Nitrogen oxides (NO_x) are a group of gases that are predominantly formed during the combustion of fossil fuels. The majority of NO_x emitted as a result of combustion is in the form of nitric oxide (NO). When NO reacts with other gases present in the air, it can form nitrogen dioxide (NO₂).³² Around half of nitrogen oxides (NO_x) emissions in London come from road transport sources. The other half of emissions come from non-road transport sources, including construction, residential and commercial buildings, river, aviation, and industrial emissions.³³

Particulate matter (PM) are breathable particles classified according to size. PM is not a single compound. It is made up of a mixture of solid and liquid particles of organic and inorganic chemicals. It includes some naturally occurring substances, such as salt and dust, as well other substances, such as particles from brakes and tyre wear. PM is split into different categories, such as PM₁₀ and PM_{2.5}, which reflects the size of the particles (PM_{2.5} is smaller). Like other pollutants, PM can travel large distances and it is a transboundary problem. Sometimes, depending on wind direction and other circumstances, around a third of the UK PM_{2.5} levels (more in South East England than other areas) are from sources outside of the UK (for example,

²⁸ TfL, [ULEZ Expansion 2023](#) [downloaded on 13 December 2022]

²⁹ [Chief Medical Officer's annual report 2022: air pollution](#), 8 December 2022, chapter 6.3

³⁰ Mayor of London, [Chief Medical Officer's Annual Report on Air Quality shows Mayor's success in bringing down air pollution](#), 8 December 2022

³¹ TfL, [Air quality](#) [downloaded 13 December 2022]

³² UK Government, [Clean Air Strategy 2019](#), January 2019

³³ Mayor of London, [London Environment Strategy](#), 31 May 2018, p48

continental Europe).³⁴ Road transport accounted for approximately 31% of PM_{2.5} emissions in London in 2019.³⁵

Exposure to these pollutants can have implications for human health, the severity of which can vary depending on the nature and duration of exposure. This was most recently set out in a [December 2022 report on air pollution from the Chief Medical Officers](#) (CMOs), who summarised that air pollution is, “associated with impacts on lung development in children, heart disease, stroke, cancer, exacerbation of asthma and increased mortality, among other health effects.” The report provided more detailed information about the known health impacts of the different air pollutants.³⁶

The CMOs’ report stated that the highest proportion of premature deaths attributable to air pollution, (within Greater London as a whole), is in outer London; principally due to the higher proportion of older people living in these areas, who are more vulnerable to the health impacts of air pollution.³⁷ The outer London boroughs of Bromley, Barnet, Havering and Croydon were those identified as having the highest number of early deaths attributable to air pollution.³⁸ This was also the concern raised in a May 2022 TfL and Mayor of London document, which summarised the context for expanding the ULEZ in relation to health and mortality costs, as follows:

If no further action is taken to reduce air pollution, around 550,000 Londoners will develop diseases related to poor air quality over the next 30 years. In this case the cost to the NHS and social care system in London is estimated to be £10.4 billion by 2050. The greatest number of deaths related to air pollution are likely to be in outer London boroughs, mainly due to the higher proportion of elderly people in these areas, who are more vulnerable to the impacts of air pollution. This is because lung function declines with age and older people are more likely to have co-morbidities. Children are also more vulnerable to breathing in polluted air. Children’s airways are smaller and still developing, and they breathe more rapidly than adults. Buggies and prams put small children at the level of car exhausts.³⁹

The expanded ULEZ area is forecast, by the Mayor of London, to make the following contribution to improving air quality:

Amongst other improvements, the expansion is forecast to make further progress to reduce air pollution, by reducing nitrogen oxides (NO_x) emissions from cars and vans in outer London by 10 and 7 percent respectively, and

³⁴ UK Government, [Clean Air Strategy 2019](#), January 2019

³⁵ Mayor of London and TfL, [Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures](#), (opens PDF), May 2022, p26

³⁶ [Chief Medical Officer’s annual report 2022: air pollution](#), 8 December 2022

³⁷ [Chief Medical Officer’s annual report 2022: air pollution](#), 8 December 2022, chapter 6.3

³⁸ TfL, [TfL seeks views on expanding world-leading ULEZ London-wide, as new data estimates it would deter more than 100,000 of the most polluting cars a day](#), 20 May 2022

³⁹ Mayor of London and TfL, [Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures](#), (opens PDF), May 2022

reducing PM_{2.5} car exhaust emissions in outer London by nearly 16 per cent, benefitting five million outer London residents.⁴⁰

London air quality policy and targets

Air quality in the capital is devolved to the Mayor of London, who has a supervisory role, with powers to intervene and direct local authorities in Greater London, under Part IV of the [Environment Act 1995](#), as amended.⁴¹ As part of this, the Mayor has a duty to achieve the legal limits for air pollutants in Greater London. Limit values for NO₂, PM₁₀ and PM_{2.5} (among other pollutants), are set in the [Air Quality \(Standards\) Regulation 2010](#), (the “2010 regulations”), as amended (SI 2010/1001). Limit values are parameters that must not be exceeded for concentrations of different pollutants within specified timeframes.

The limit values set by the 2010 regulations in respect of particulate matter and nitrogen dioxide are:

- **By January 2005 for PM₁₀:** a maximum annual mean concentration of no more than 40µg/m³; and a 24 hour mean concentration of 50µg/m³ not to be exceeded more than 35 times a year.
- **By January 2010 for NO₂:** a maximum annual mean concentration of no more than 40µg/m³; and an hourly mean concentration of 200µg/m³ not to be exceeded more than 18 times in a year.
- **By January 2015 for PM_{2.5}:** a maximum annual mean concentration of 25µg/m³.

µg/m³ is a microgram (one-millionth of a gram) per cubic metre of air.

In addition to statutory air quality limits, the World Health Organization (WHO) published updated [Global Air Quality Guidelines](#) in September 2021. They provide guidance on thresholds and limits for key air pollutants that pose health risks. They are guidelines only and are not binding on any country or government unless they are adopted into domestic legislation. These guidelines are an update on the previous 2005 version, [Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide \(PDF\)](#). In the update, the annual guideline level for fine particulate matter (PM_{2.5}) was lowered from 10 µg/m³ to 5 µg/m³ and the guideline level for nitrogen dioxide was reduced from 40 µg/m³ to 10 µg/m³.

The Mayor’s London Environment Strategy was published on 31 May 2018.⁴² It called air quality the “most pressing environmental threat to the future health of London.” It set the aim for London to have the best air quality of any major world city by 2050, going “beyond the legal requirements to protect human

⁴⁰ Mayor of London, [Chief Medical Officer's Annual Report on Air Quality shows Mayor's success in bringing down air pollution](#), 8 December 2022

⁴¹ Defra, [London technical guidance](#) [downloaded on 14 December 2022]

⁴² Mayor of London, [London Environment Strategy](#), 31 May 2018

health and minimise inequalities.”⁴³ The reference to going beyond legal requirements was later defined in the strategy as an ambition to meet the WHO’s PM_{2.5} target (as per the then 2005 guidelines).⁴⁴

Progress towards the targets

The Greater London Authority compiles a [Borough Air Quality Compendium](#) (opens PDF) from the reports for individual London boroughs. Its January 2022 report, summarised the collective progress of London boroughs towards meeting the 2010 regulation air quality limit values for nitrogen dioxide and particulate matter, as follows:

The number of sites exceeding the annual mean NO₂ Air Quality Objectives (AQOs) reduced from 518 in 2019 to 100 in 2020, a decrease of 80%. This decrease can be partly attributed to the COVID-19 pandemic, where government restrictions drastically reduced the number of vehicles on the road. Since 2014, the downward trend in measured NO₂ hourly mean concentrations has continued, with only one monitor across all boroughs exceeding the objective in 2020, compared with two in 2019 and six in 2018.

(...)

There were no exceedances of the annual or daily mean PM₁₀ objectives, except at one site in Lambeth, though the data should be treated with caution because the spikes recorded at the station are due to contamination from a nearby vent, leading to erroneous data which is not at all representative of the ambient air in the general area.

(...)

In 2020, there were 52 automatic PM_{2.5} monitors across 22 boroughs, none of which recorded an exceedance of the Air Quality Objectives – although these are significantly less stringent than the recommended WHO guidelines, which have been updated in 2021. The Mayor has adopted a target to meet the interim WHO limit of 10 µg/m³ for PM_{2.5} by 2030 and asks boroughs to continue to work towards this target through the LLAQM system.⁴⁵

The CMO’s December 2022 report framed progress towards meeting the targets in terms of numbers of Londoners living in areas exceeding limits:

Over 2 million Londoners were living in areas exceeding the annual average legal limit of 40µg/m³ for NO₂ in 2016, reducing to 174,000 in 2019. The number of state primary and secondary schools in London in areas exceeding the legal limit for NO₂ fell from 455 in 2016 to just 20 in 2019. Nearly 1.2 million Londoners lived in areas meeting the WHO interim guideline for PM_{2.5} of 10µg/m³ in 2019 – up from zero in 2016.⁴⁶

⁴³ Mayor of London, [London Environment Strategy](#), 31 May 2018, p25

⁴⁴ Mayor of London, [London Environment Strategy](#), 31 May 2018, p106

⁴⁵ Greater London Authority, [Local authorities and air quality: A summary of action taken by London boroughs to improve air quality in 2020](#) (opens PDF), January 2022, p7

⁴⁶ [Chief Medical Officer’s annual report 2022: air pollution](#), 8 December 2022

Although air quality levels have shown improvement in London overall, a May 2022 report from the Mayor of London highlighted the difference in improvement between inner and outer London:

The reduction in NO_x emissions from road transport since 2013 has not happened equally across London. Inner London road transport NO_x emissions halved between 2013 and 2019. Comparatively, outer London NO_x emissions from road transport fell by 31 per cent over the same time period, and in 2019 accounted for 28 per cent of London-wide NO_x emissions. Similarly, PM_{2.5} emissions from road transport fell by almost a quarter in inner London between 2016 and 2019, whereas in outer London they fell by seven per cent.⁴⁷

The air quality limits stem from EU legislation (Directive 2008/50/EC) and the EU Commission has previously instigated infraction proceedings against the UK for failure to respect limit values for nitrogen dioxide (NO₂), and for failing to take appropriate measures to keep exceedance periods as short as possible. Any future enforcement of air quality targets would now be for the new environmental governance body in England, the Office for Environmental Protection. For further information about air quality legislation, targets, and enforcement in a national context, see Commons Library briefing, [Air quality: policies, proposals, and concerns](#).

The existing ULEZ and air quality

It can be difficult to assess the effectiveness of just one action alone in relation to its impact on air quality. This is because different factors can affect air quality levels at any particular time. For example, weather patterns and wind direction have a bearing on levels of transboundary particulate matter and cold weather can lead to increased emissions from a variety of industrial and domestic sources, such as of particulate matter from domestic burning. Events such as COVID-19 lockdowns and restrictions have also affected behaviour and traffic levels in recent years. A small number of studies, however, have attempted to examine the evidence available.

The CMOs' December 2022 report examined the effect of the existing ULEZ in London on air quality levels since its introduction, noting a fall in levels of both particulate matter and nitrogen dioxide:

Since the introduction of the central London ULEZ, vehicle air pollution emissions have reduced. While the ULEZ was not introduced until April 2019, the introduction of the Toxicity Charge was confirmed as a stepping stone for the ULEZ in February 2017. The effects of the ULEZ can be measured from this date, as it marked the beginning of an accelerated change in the vehicle fleet, with Londoners and businesses preparing for the new schemes and buses on routes in central London starting to undergo upgrades to become ULEZ compliant. Between February 2017 and February 2020, NO₂ concentrations at

⁴⁷ Mayor of London and TFL, [Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures](#), (opens PDF), May 2022

roadside sites within the original central zone reduced by 44% and fine particulate matter (PM_{2.5}) reduced by 27%.⁴⁸

In a study published in the journal, *Environmental Letters*, in 2021, researchers from Imperial College London used publicly available air quality data to measure changes in pollution in the twelve-week period from 25 February 2019, before the ULEZ was introduced, to 20 May 2019, after it had been implemented. They attempted to control for the effects of weather variations, and then used statistical analysis to look for and quantify changes in pollution.⁴⁹ They concluded that the ULEZ had “caused only small improvements in air quality in the context of a longer-term downward trend in London's air pollution levels.”⁵⁰ The authors argued that ULEZ on its own was not an effective strategy to improve air quality and that it worked “best” when combined with a broader set of policies that reduced emissions.⁵¹

The current ULEZ and the proposed expansion of it is one of a number of policies to improve air quality, as set out in the London Environment Strategy, and sits in the context of the [Mayor's Transport strategy](#), which aims (among other things) to encourage more people to walk, cycle and use public transport. The Mayor's May 2022 report on proposals to expand the ULEZ noted that other actions would also need to be taken to improve air quality:

The expansion of the ULEZ to the North and South Circular Roads, along with cleaning up the bus and taxi fleets are expected to reduce PM_{2.5} emissions from road transport. However, the dominant proportion of road transport emissions are now non-exhaust emissions including tyre and brake wear along with road wear and resuspension of particles as vehicles travel on roads, which also contributes to London's particulate emissions. Therefore, it is essential to also reduce the number of trips made by motor vehicles and enable more walking, cycling and public transport where possible (modal shift).⁵²

⁴⁸ [Chief Medical Officer's annual report 2022: air pollution](#), 8 December 2022, chapter 6.3

⁴⁹ Imperial College London, [London pollution has improved with evidence for small initial ULEZ effect: study](#), 16 November 2021

⁵⁰ Has the ultra low emission zone in London improved air quality? [Liang Ma et al 2021 Environ. Res. Lett. 16 124001](#)

⁵¹ Imperial College London, [London pollution has improved with evidence for small initial ULEZ effect: study](#), 16 November 2021

⁵² Mayor of London and TFL, [Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures](#), (opens PDF), May 2022, p27

2.2

Assessment of ULEZ

The purpose of the ULEZ and LEZ is to improve air quality in and around London by reducing the number of older and more polluting vehicles that drive in the city.

The impact of the ULEZ and LEZ can be assessed using a number of different metrics including:

- Compliance rates
- Changes in fleet composition
- Traffic flows
- Air quality monitoring data.

Unless stated otherwise, the information in this section is sourced from the Mayor of London's most recent report on the ULEZ, [Low Emission Zone – Six Month Report](#), from July 2022.

Compliance rates

Vehicle compliance refers to the number of vehicles that meet the ULEZ emission standards. Vehicles that do not comply and are not exempt must pay the daily charge or be liable for enforcement action.

In May 2022, six months after the launch of the ULEZ expansion, nearly 94 per cent of vehicles seen driving in the zone met the ULEZ standards on an average day, up from 87 per cent in October 2021, weeks before the zone expanded, and up from 39 per cent in February 2017, when impacts associated with the ULEZ began.

Large and heavy vehicles, which fall under the London-wide LEZ, have a compliance rate of 96 per cent in May 2022, up from an estimated 48 per cent in February 2017.

Changes in fleet composition

A bigger share of vehicles in London are cleaner. On average there were 44,000 fewer diesel cars driving in the ULEZ zone each day in May 2022, a 20 per cent decrease since before the ULEZ expanded in October 2021.

Diesel vehicles produce emissions which are particularly harmful to human health. Diesel exhaust is a known carcinogen, and diesel cars generally emit more NO_x and PM_{2.5} than petrol cars.

Traffic flows

The reduction of traffic or congestion is not the primary aim of the ULEZ. Although introducing an emissions requirement for vehicles has been shown to deter a small proportion of vehicle trips and lead to a change in how some people travel.

The overall number of vehicles detected in the ULEZ zone has reduced by 2 per cent from 950,000 in October 2021 to 929,000 in May 2022. There has also been a 54 per cent reduction in the number of non-compliant vehicles entering the ULEZ zone from October 21 (124,000 vehicles) to May 2022 (57,000 vehicles).

However, it is not possible to isolate the impact of the continued rise in fuel prices and the longer-term pandemic effects on travel including return to work from mid-March 2022.

Air quality

Since the introduction of the central London ULEZ, vehicle air pollution emissions have reduced.

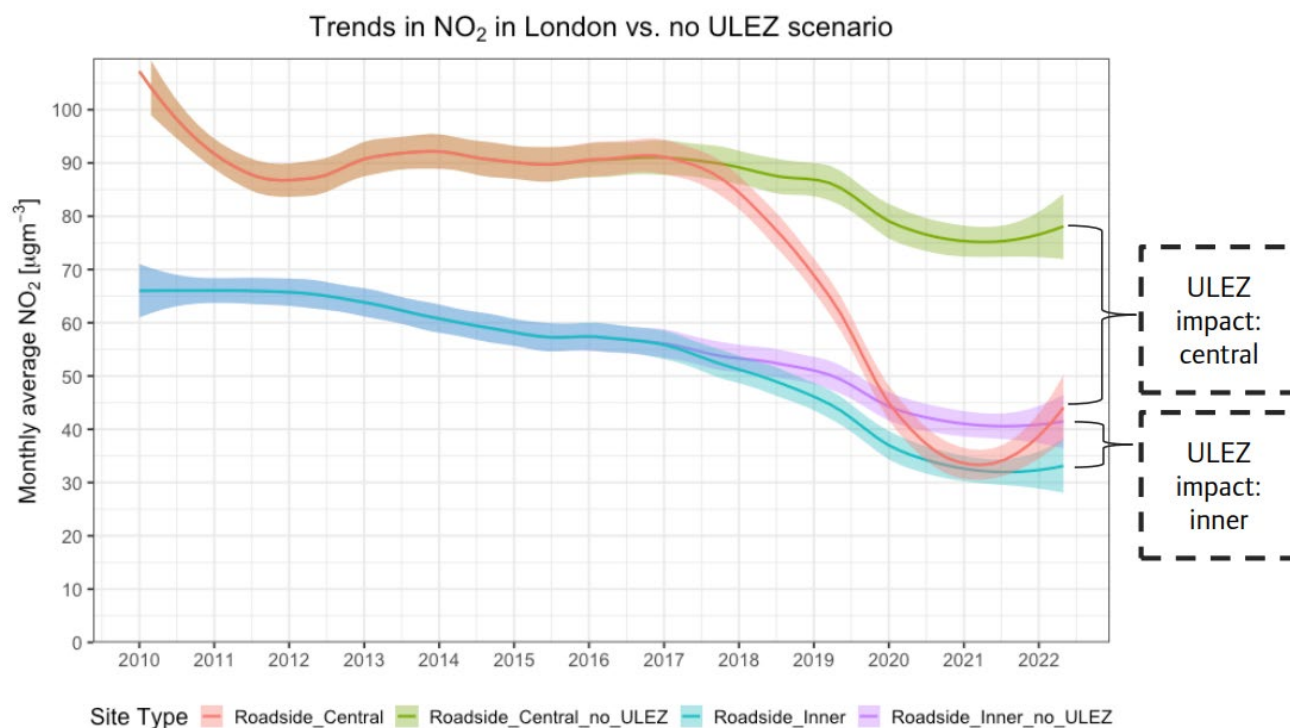
Nitrogen Dioxide (NO₂)

Trends in monthly NO₂ concentrations

The graph below shows the trends in monthly average NO₂ concentrations at central and inner London roadside sites compared with the estimated path they would have followed had they reduced at the same rate as outer London roadside sites since 2017 (the 'no ULEZ' scenarios on the graph).⁵³

It shows that both central and inner London roadside sites have seen concentrations reduce much quicker and further than would be expected without the ULEZ and its expansion.

⁵³ Mayor of London, [Low Emission Zone – Six Month Report](#), July 2022



Source: Mayor of London, [Low Emission Zone – Six Month Report](#), July 2022

Estimated reduction in NO₂ concentrations due to ULEZ policies

The table below shows the reduction at central and inner London roadside concentrations that is in addition to the changes measured at outer London roadside sites. Outer roadside sites are used as the ‘no ULEZ’ scenario in the model.

Period	Reduction in central London roadside compared with no ULEZ		Reduction in inner roadside London compared with no ULEZ	
	µgm ⁻³	per cent	µgm ⁻³	per cent
Jan – March 19	19	22%	5	10%
April – June 19	23	27%	6	12%
July – Sept 19	27	33%	6	13%
Oct – Dec 19	32	39%	7	15%
Jan – March 20	35	45%	7	17%
April – June 20	38	49%	8	18%
July – Sept 20	40	52%	8	19%
Oct – Dec 20	41	55%	8	20%
Jan – March 21	42	56%	8	21%
April – June 21	42	55%	9	21%
July – Sept 21	41	54%	9	21%
Oct – Dec 21	39	52%	9	21%
Jan – March 22	37	48%	9	21%
April – June 22	35	44%	8	20%

Source: Mayor of London, [Low Emission Zone – Six Month Report](#), July 2022

The difference between the measured trend and the ‘no ULEZ scenario’ in central London is substantial and demonstrates that the ULEZ, LEZ and other policies have had a transformative impact on reducing NO₂ levels in this area.

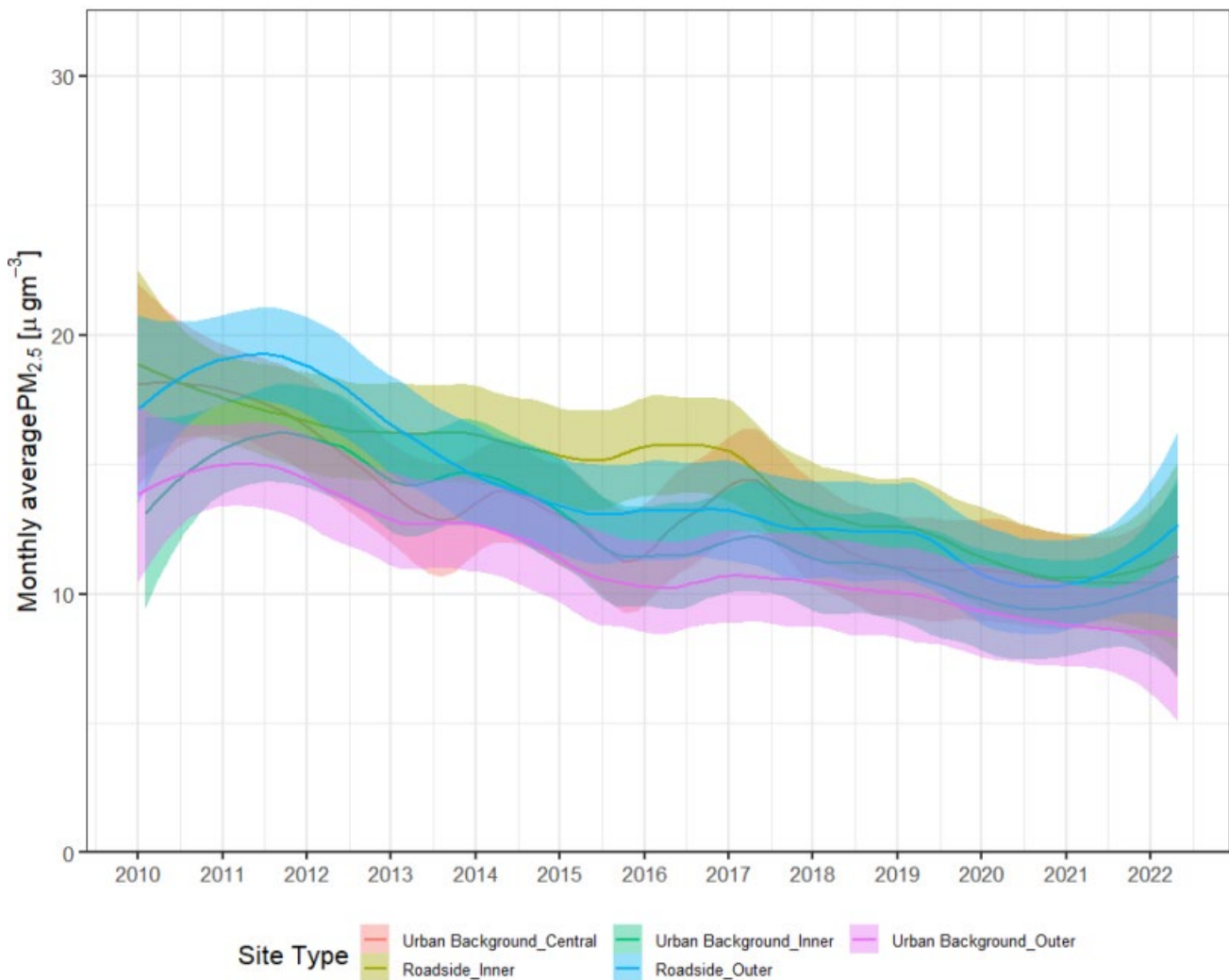
In April to June 2022, the mean roadside NO₂ concentrations measured in central London were 35µgm⁻³ lower than the estimated ‘no ULEZ’ scenario, a difference of 44%. In inner London, roadside NO₂ concentrations were 8 µgm⁻³ lower than the estimated ‘no ULEZ’ scenario, a difference of 20%.

Fine particulate matter (PM_{2.5})

Trends in monthly PM_{2.5} concentrations

The graph below shows that there has been a gradual and continuous reduction in PM_{2.5} concentrations since 2010, at all site types and locations. This trend has continued through the introduction of the ULEZ and its expansion.

Between the first quarter of 2017 and second quarter of 2022, there was a 29% reduction in average PM_{2.5} in the background in central London and roadside in inner London, as well as a reduction of 16% in the background in inner London. In Outer London, there was a 6% reduction at roadside and a 24% reduction in the background.

Trends in PM_{2.5} in London

Source: Mayor of London, [Low Emission Zone – Six Month Report](#), July 2022

Differences between NO₂, and PM_{2.5} reductions

The reduction in PM_{2.5} emissions that would occur due to the ULEZ will have a less pronounced impact on concentrations than seen for NO₂, which is dominated by London-based traffic sources.

This is because a large proportion of PM_{2.5} emitted within London would not be affected by the ULEZ, for example wood burning accounts for 17 per cent of PM_{2.5} emissions in London. Moreover, over half of London's concentrations of PM_{2.5} come from outside London.

3

Parliamentary Material

Debate

[Topical Questions](#), Commons Chamber, Volume 723: debated on Thursday 1 December 2022

[Topical Questions](#), Commons Chamber, Volume 723: debated on Tuesday 29 November 2022

[Topical Questions](#), Commons Chamber, Volume 723: debated on Thursday 24 November 2022

[Business of the House](#), Commons Chamber, Volume 715: debated on Thursday 9 June 2022

[Transport for London: Finance](#), Commons Chamber, Volume 714: debated on Thursday 19 May 2022

[Easter Adjournment debate](#), Commons Chamber, Volume 711: debated on Thursday 31 March 2022

[Financial Statement debate](#), Volume 711: debated on Wednesday 23 March 2022

[Smart Road Pricing](#), Westminster Hall, Volume 710: debated on Wednesday 9 March 2022

PQs

[Health Services: Greater London](#)

Asked by : Andrew Rosin dell

To ask the Secretary of State for Health and Social Care, what assessment his Department has made of the potential impact of the extension of the Ultra Low Emission Zone on access to healthcare in London.

Answering Member : Maria Caulfield

Department : Department of Health and Social Care

The decision to extend the Ultra Low Emission Zone (ULEZ) is a matter for the Mayor of London. The NHS in London has been engaged in consultations on these plans, and impacts on access to NHS services are being considered.

NHS patients may be able to claim the ULEZ charge through their treating NHS provider if they cannot travel by public transport and meet clinical criteria. The existing Zone is making an important contribution to the health of Londoners.

UIN 902629, tabled on 6 December 2022

[Low Emission Zones: Greater London](#)

Asked by : Sir David Evennett

To ask the Secretary of State for Transport, what assessment his Department has made of the effectiveness of the Mayor of London's 2023 ULEZ expansion.

Answering Member : Mr Richard Holden

Department : Department for Transport

Transport in London is devolved to the Mayor of London. There is no legal requirement for the Mayor to consult either central or local Government on the decision to expand the Ultra-Low Emission Zone. However, we have been clear that Government grant funding, via the longer-term funding settlement, cannot be used to cover the estimated £250 million cost of implementation. Therefore, the Mayor and TfL must cover this cost through alternative sources available to them. If Members are unhappy with the decisions that the Mayor has been making, they should make this known at the next London mayoral election in 2024.

UIN 99746, tabled on 30 November 2022

[Low Emission Zones: Greater London](#)

Asked by : Andrew Rosindell

To ask the Secretary of State for Transport, what discussions he has had with the Major of London on the mitigation of the financial losses incurred by constituents of affected London Boroughs who own non-compliant vehicles following the Mayor of London's expansion of the London Ultra Low Emission Zone.

Answering Member : Mr Richard Holden

Department : Department for Transport

Transport in London is devolved to the Mayor of London. There is no legal requirement for the Mayor to consult either central or local Government on the decision to expand the Ultra-Low Emission Zone. However, we have been clear that Government grant funding, via the longer-term funding settlement, cannot be used to cover the estimated £250 million cost of implementation. Therefore, the Mayor and TfL must cover this cost through alternative sources available to them. If Members are unhappy with the decisions that the Mayor

has been making, they should make this known at the next London mayoral election in 2024.

UIN 98692, tabled on 29 November 2022

[Low Emission Zones: Greater London](#)

Asked by : Daisy Cooper

To ask the Secretary of State for Transport, if her Department will publish a consultation on the introduction of a cleaner vehicle subsidy scheme for people who live outside the London Ultra Low Emission Zone but are required to travel into it for work.

Answering Member : Lucy Frazer

Department : Department for Levelling Up, Housing and Communities

Transport in London is devolved, and it is the Mayor of London and Transport for London (TfL) who are responsible for implementing measures and developing any associated vehicle subsidy scheme to improve air quality in the capital and reduce harmful emissions.

The Ultra-Low Emission Zone has been shown to be an effective way of delivering immediate air quality improvements in the capital. On 4 March 2022, the Mayor announced plans to expand the ULEZ London-wide in 2023 to make London a healthier and less congested city. Following consultation, the mayor will consider the views of a wide range of stakeholders before making any decision on road charging.

While the Department for Transport (DfT) works closely with TfL on a range of issues, the operation of the Low Emission Zone (LEZ) and Ultra Low Emission Zone (ULEZ) is entirely a matter for them. Questions or concerns about any of the measures that have been taken to improve London's air quality should be directed to TfL.

UIN 51979, tabled on 20 September 2022

4 Press Material

The following is a selection of news and media articles relevant to this debate. Please note: the Library is not responsible for either the views or the accuracy of external content.

[Watford leaders slam 'unfair and unjustified' ULEZ expansion](#)

Watford Observer

Fintan McGuinness

15 December 2022

[London air pollution: expanding the ULEZ is good but it won't work by itself](#)

The Conversation

Jamie Furlong

9 December 2022

[Croydon and Sutton to start paying ULEZ charge for first time](#)

Sutton and Croydon Guardian

Tara O'Connor

29 November 2022

[Ulez 'could kill off London's private care home services'](#) [Paywall]

Telegraph

Emma Gatten

29 November 2022

[More than half against Ulez expansion says poll — but Sadiq Khan calls it 'misleading'](#)

Evening Standard

Ross Lydall

17 November 2022

5

Further Reading

- Commons Library Briefing CBP-9600 [Air quality: policies, proposals and concerns](#) 6 September 2022
- Commons Library Briefing SN-03732 [Road pricing](#) 6 August 2020
- Commons Library Briefing CBP-7374 [Low Emission Zones](#) 23 November 2015
- Transport Committee, [Road pricing](#), 4 February 2022, HC 789 2021–22
- Environment, Food and Rural Affairs Committee, [Air Quality and coronavirus: a glimpse of a different future or business as usual](#) 2 February 2021, HC 468 2019–21

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